

# STATISTICAL DESIGN AND ANALYSIS OF EXPERIENCES

## **1. Introduction to the analysis of variance, ANOVA.**

Experimental designs.

Types of predictor variables (factors)

Assumptions.

## **2. Single factor (one way) designs.**

Fixed effects

ANOVA table.

Parameter estimation.

Planned and unplanned comparisons among means

Random effects: variance components

## **3. Factorial designs.**

Two-way ANOVA models: Designs, estimation and testing of main effects and interactions.

Multi-way ANOVA.

## **4. Nested designs.**

Linear model for nested analyses.

ANOVA table and parameter estimation.

## **5. Randomized complete blocks and simple repeated measures.**

Unreplicated two factor experimental designs: Randomized complete block (RCB) designs and Repeated measures (RM) designs.

Linear models for RCB and RM designs

Efficiency of blocking.

More complex block designs: Latin square designs.

## **6. Analysis of covariance.**

Single factor analysis of covariance (ANCOVA)

More complex designs.

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